

REMARKS

Claims 1-27 and 29 are pending in the application with claims 1, 11, 12, 18, and 25 being the independent claims. Claim 28 is canceled without prejudice to or disclaimer of the subject matter therein. Claims 1, 7-12, 16-23, 25-27, and 29 are amended.

Drawings

The Office Action objected to the drawings for allegedly not showing every feature recited in the claims. In particular, the Office Action indicated that the groove width and the land width in claims 15 and 24 are not shown in the drawings. Applicants respectfully traverse the objection because the groove and land widths are shown in the drawings. The groove width is identified by the reference numeral 136 and is shown in at least Figs. 1, 3, and 5. The land width is identified by the reference numeral 138 and also is shown in at least Figs. 1, 3, and 5. The groove width 136 and the land width 138 are described in the specification at least in paragraphs 26 and 29. Because the groove width 136 and the land width 138 are properly shown in the drawings, Applicants respectfully request that the Examiner withdraw the objection.

Rejections Under 35 U.S.C. § 102

Potter and Mossay

The Office Action rejected claims 1, 6-9, and 18 as being anticipated by U.S. Patent No. 3,260,872 to Potter. In addition, the Office Action rejected claims 1-5 as being anticipated by U.S. Patent No. 3,009,072 to Mossay.

Claim 1 is directed to a cooling system for an electric motor with all its recited features, including a cooling duct formed between a cooling jacket and a separate component surface. The cooling jacket at least partially defines an operating region of

the electric motor. The cooling system also includes an inlet port, an outlet port, and an end plate. The end plate is adjacent the cooling jacket and includes an annular ring and at least one fluid passage formed therein. The fluid passage is configured to direct fluid from the annular ring into the operating region.

Neither of Potter nor Mossay anticipates claim 1 because neither discloses all the features of claim 1. For example, neither Potter nor Mossay discloses a cooling system for an electric motor, with all its recited features, including an end plate with an annular ring and a fluid passage, the fluid passage being configured to direct fluid from the annular ring into an operating region.

Instead, Potter discloses an oil cooled generator design that directs fluid through channels in a housing to passages in a bearing cap (25). The bearing cap (25) does not include an annular ring and, therefore, cannot direct fluid from an annular ring into an operating region, as recited in claim 1. Independent claim 18, also rejected as being anticipated by Potter, is directed to an electric motor including many features similar to those recited in claim 1, including an end plate with an annular ring and a fluid passage. Therefore, like claim 1, claim 18 is not anticipated by Potter.

Mossay discloses fluid cooled motors having a stator pack (1) and barrel (10) about the stator pack (1). An inflatable sandwich is expanded to conform to inner channels of the barrel (10) and the stator pack (1). Mossay does not disclose an end plate that includes an annular ring and at least one fluid passage configured to direct fluid into the operating region.

Because neither Potter nor Mossay disclose a cooling system for an electric motor having all the features recited in claim 1, claim 1 is allowable over the cited references.

Claims 2-9 depend from and add additional features to independent claim 1. Therefore, these claims should be allowable at least for the reasons discussed above. Applicants respectfully request that the Examiner withdraw the rejection and allow these claims.

Hernden

The Office Action rejected claims 25-27 as being anticipated by U.S. Patent No. 5,363,002 to Hernden et al. ("Hernden"). Claim 25 is amended to include the features of dependent claim 28, and claim 28 is canceled from the application. Original claim 28 was not anticipated by Hernden. Accordingly, claim 25, reciting the features of original claim 28, also is not anticipated by Hernden.

Claims 26 and 27 depend from and add additional features to independent claim 25. Therefore, these claims are not anticipated for at least for the reasons discussed above. Applicants respectfully request that the Examiner withdraw the rejection.

Rejections Under 35 U.S.C. § 103

Potter in view of Hernden

The Office Action rejected claims 10, 11, and 19-24 under 35 U.S.C. § 103 as being unpatentable over Potter in view of Hernden. Claims 10 and 19-24 depend from independent claims 1 and 18, which are allowable for at least the reasons discussed above. Accordingly, Applicants respectfully request that the Examiner withdraw the rejection and allow claims 10 and 19-24.

Applicants have rewritten claim 11 in independent form to include many of the features of its base claim, independent claim 1, along with some of the features of the intervening claims. Claim 11 now is directed toward a cooling system for an electric motor, with all its recited features, including a cooling duct, at least one passage in communication with the cooling duct, wherein the at least one passage is configured to direct a cooling liquid into an operating region, and a deflector within the operating region at the end of the at least one passage. The deflector is configured to deflect the spray of the cooling liquid onto end windings of a stator.

The combination of Potter and Hernden does not establish a *prima facie* case of obviousness with respect to claim 11 because the combination of Potter and Hernden fails to teach or disclose all the features recited in claim 11. For example, the combination fails to teach or suggest a cooling system having all the recited features in claim 11 with a deflector within the operating region and configured to deflect the spray of the cooling liquid onto end windings of a stator.

Hernden discloses cooling grooves (25) with a fluid transfer passage (43) extending beyond an axial end of a stator core (28) to a fluid coolant exit port (37) that allows fluid to be sprayed in the direction of the end turns (21). (Note: Applicants interpret reference numeral 38 in Fig. 3 of Hernden, which is not identified in the specification, to be identifying the exit port (37) referred to in the specification. See Hernden, column 3, lines 59-68, Fig. 3.) However, the exit port (37) is not a deflector as is recited in claim 11 because the exit port (37) in Hernden is a part of the passage itself. In contrast, the claimed cooling system includes, among other things, a deflector within the operating region at the end of the at least one passage. Therefore, Hernden

does not teach or suggest a deflector as recited in claim 11. Potter does not cure the deficiency because Potter does not disclose any deflecting of cooling fluid on end windings of a stator. Therefore, the combination of Potter and Hernden does not establish a *prima facie* case of obviousness because the combination fails to teach or suggest all the features recited in claim 11. Accordingly, Applicants respectfully request that the Examiner consider and allow claim 11.

Hernden in view of Crowell

The Office Action rejected claims 12-17 under 35 U.S.C. § 103 over Hernden in view of U.S. Patent No. 5,859,482 to Crowell et al. ("Crowell"). Claim 12 is directed toward an electric motor, with all its recited features, including a cooling jacket at least partially defining an operating region, a stator disposed within the operating region, and an end plate adjacent the cooling jacket. The end plate includes an annular ring and at least one fluid passage formed therein. The fluid passage is configured to direct a cooling liquid from the annular ring into the operating region.

The combination of Hernden and Crowell fails to establish a *prima facie* case of obviousness with respect to independent claim 12 because the combination fails to teach or suggest all of the recited features in claim 12. Neither Hernden nor Crowell discloses an end plate having a fluid passage that directs a cooling liquid into an operating region. Therefore, the combination of Hernden and Crowell cannot render unpatentable the electric motor recited in claim 12. Because neither Hernden nor Crowell disclose an electric motor having all the features recited in claim 12, claim 12 should be allowable over the cited references.

Claims 13-17 depend from and add additional features to independent claim 12. Therefore, these claims should be allowable at least for the reasons discussed above. Applicants respectfully request that the Examiner withdraw the rejection and allow these claims.

Hernden in view of Potter

The Office Action rejected claims 28 and 29 under 35 U.S.C. § 103 as being unpatentable over Hernden in view of Potter. The subject matter of dependent claim 28 was combined into independent claim 25. Therefore, independent claim 25 now includes all the features of original claim 28. Applicants respectfully submit that claim 25 is not unpatentable in view of the combination of Hernden and Potter. Claim 25 now is directed to an electric motor including a cooling jacket defining an operating region, a stator, a rotor, and at least one fluid passage configured to inject a cooling liquid into the operating region to cool the stator and rotor. The electric motor also includes an end plate having an annular ring formed therein. The at least one fluid passage is configured to direct fluid from the annular ring into the operating region.

The combination of Hernden and Potter fails to establish a *prima facie* case of obviousness with respect to independent claim 25 because the combination fails to teach or suggest all of the recited features in claim 25. For example, neither Hernden nor Potter teaches or suggests an electric motor, with all its features, including an end plate having an annular ring formed therein, with at least one fluid passage configured to directs a cooling liquid into an operating region.

Hernden discloses cooling grooves (25) and fluid transfer passages (43), but does not disclose any end plate. Potter discloses an oil cooled generator design that

directs fluid through channels in a housing to passages in a bearing cap (25). The bearing cap (25) does not include an annular ring and, therefore, cannot direct fluid from an annular ring into an operating region, as recited in claim 25.

Therefore, the combination of Hernden and Potter cannot render unpatentable the electric motor recited in claim 25. Because neither Hernden nor Potter disclose an electric motor having all the features recited in claim 25, claim 25 should be allowable over the cited references.

Claim 29 depends from and adds additional features to independent claim 25. Therefore, claim 29 should be allowable at least for the reasons discussed above. Applicants respectfully request that the Examiner withdraw the rejection and allow these claims.

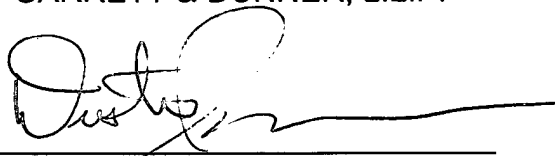
Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully submit that claims 1-27 and 29 are in a condition for allowance. Applicants respectfully request reconsideration of this application, withdrawal of the objection and rejections, and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

A handwritten signature in black ink, appearing to read 'Dustin T. Johnson', written over a horizontal line.

Dated: April 18, 2005

By: _____

Dustin T. Johnson
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